

- (i) a Ser changed to a Group 2 amino acid residue at position 133;
- (j) a Glu changed to a Group 2 amino acid residue at position 141;
- (k) a Glu changed to a Group 5 amino acid residue at position 141;
- (l) a Cys changed to a Group 6 amino acid residue at position 153;
- (m) a Cys changed to a Group 5 amino acid residue at position 153;
- (n) a Thr changed to a Group 1 amino acid residue at position 281;
- (o) a Asn changed to a Group 2 amino acid residue at position 367;
- (p) a Asn changed to a Group 6 amino acid residue at position 367;
- (q) a Pro changed to a Group 4 amino acid residue at position 389; and
- (r) a Pro changed to a Group 2 amino acid residue at position 389.

78. The polypeptide of claim 77 wherein the polypeptide when expressed in an *A. terreus* cell harboring a *lovF* gene increases expression of the *lovF* gene relative to an otherwise identical cell not expressing the polypeptide.

79. The polypeptide of claim 77 wherein the polypeptide when expressed in an *S. cerevisiae* harboring a gene under the control of the *A. terreus* *lovF* expression control region increases expression of the gene relative to an otherwise identical cell not expressing the polypeptide.

80. The isolated polypeptide of claim 77 having the amino acid change F31L.

81. The isolated polypeptide of claim 77 having the amino acid change Q41K or Q41R.

82. The isolated polypeptide of claim 77 having the amino acid change T52I.

83. The isolated polypeptide of claim 77 having the amino acid change T52N.

84. The isolated polypeptide of claim 77 having the amino acid change C73R.

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85. The isolated polypeptide of claim 77 having the amino acid change P101S.
86. The isolated polypeptide of claim 77 having the amino acid change P101Q.
87. The isolated polypeptide of claim 77 having the amino acid change V111I.
88. The isolated polypeptide of claim 77 having the amino acid change S133L.
89. The isolated polypeptide of claim 77 having the amino acid change E141V.
90. The isolated polypeptide of claim 77 having the amino acid change E141K.
91. The isolated polypeptide of claim 77 having the amino acid change C153Y.
92. The isolated polypeptide of claim 77 having the amino acid change C153R.
93. The isolated polypeptide of claim 77 having the amino acid change T281A.
94. The isolated polypeptide of claim 77 having the amino acid change N367I.
95. The isolated polypeptide of claim 77 having the amino acid change N367Y.
96. The isolated polypeptide of claim 77 having the amino acid change P389S.
97. The isolated polypeptide of claim 77 having the amino acid change P389L.
98. The isolated polypeptide of claim 77 comprising an amino acid sequence selected from the group consisting of SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID

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NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:59, SEQ ID NO:60, SEQ ID NO:61, SEQ ID NO:62, SEQ ID NO:63, SEQ ID NO:64, SEQ ID NO:65, SEQ ID NO:91, SEQ ID NO:93, and SEQ ID NO:94.

99. An isolated nucleic acid molecule comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:91 having at least one amino acid change selected from the group consisting of:

- (a) a Phe changed to a Group 2 amino acid residue at position 31;
- (b) a Gln changed to a Group 5 amino acid residue at position 41;
- (c) a Thr changed to a Group 2 amino acid residue at position 52;
- (d) a Thr changed to a Group 3 amino acid residue at position 52;
- (e) a Cys changed to a Group 5 amino acid residue at position 73;
- (f) a Pro changed to a Group 4 amino acid residue at position 101;
- (g) a Pro changed to a Group 3 amino acid residue at position 101;
- (h) a Val changed to a Group 2 amino acid residue other than Val at position 111;
- (i) a Ser changed to a Group 2 amino acid residue at position 133;
- (j) a Glu changed to a Group 2 amino acid residue at position 141;
- (k) a Glu changed to a Group 5 amino acid residue at position 141;
- (l) a Cys changed to a Group 6 amino acid residue at position 153;
- (m) a Cys changed to a Group 5 amino acid residue at position 153;
- (n) a Thr changed to a Group 1 amino acid residue at position 281;
- (o) a Asn changed to a Group 2 amino acid residue at position 367;
- (p) a Asn changed to a Group 6 amino acid residue at position 367;
- (q) a Pro changed to a Group 4 amino acid residue at position 389; and
- (r) a Pro changed to a Group 2 amino acid residue at position 389.

100. The isolated nucleic acid molecule of claim 99 wherein the polypeptide when expressed in an *A. terreus* cell harboring a *lovF* gene increases expression of the *lovF* gene relative to an otherwise identical cell not expressing the polypeptide.

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101. The isolated nucleic acid molecule of claim 99 wherein the polypeptide when expressed in an *S. cerevisiae* cell-harboring a gene under the control of the *A. terreus* lovF expression control region increases expression of the gene relative to an otherwise identical cell not expressing the polypeptide.

102. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change F31L.

103. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change Q41K or Q41R.

104. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change T52I.

105. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change T52N.

106. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change C73R.

107. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change P101S.

108. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change P101Q.

109. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change V111I.

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110. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change S133L.

111. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change E141V.

112. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change E141K.

113. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change C153Y.

114. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change C153R.

115. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change T281A.

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116. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change N367I.

117. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change N367Y.

118. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change P389S.

119. The isolated nucleic acid molecule of claim 99 wherein the polypeptide has the amino acid change P389L.

120. The isolated nucleic acid molecule of claim 99 comprising a nucleotide sequence selected from the group consisting of: SEQ ID NO:66, SEQ ID NO:67, SEQ ID NO:68, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71, SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, and SEQ ID NO:90.

121. The isolated nucleic acid molecule of claim 99 wherein the nucleotide sequence encoding the polypeptide is contiguous.

122. A fungal cell containing a nucleic acid molecule encoding the polypeptide of claim 77.

123. A fungal cell containing the nucleic acid molecule of claim 99.

124. The fungal cell of claim 121 or 122 wherein the fungus is *A. terreus*.

125. The fungal cell of claim 122 or 123 wherein the fungus is *S. cerevisiae*.

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126. A method for providing a fungal cell having improved production of a secondary metabolite, the method comprising transforming the fungal cell with a nucleic acid molecule of claim 99, whereby the fungal cell has increased secondary metabolite production compared to an otherwise identical fungal cell that has not been so transformed.

127. The method of claim 126 wherein the secondary metabolite is lovastatin.

128. A method for producing a secondary metabolite, the method comprising providing a fungal cell containing the nucleic acid molecule of claim 99 and culturing the cell under conditions so as to produce the secondary metabolite.

129. The method of claim 128 wherein the secondary metabolite is lovastatin.

130. The method of claim 128 further comprising isolating a fraction comprising the secondary metabolite from either the cell or the media in which the cell was cultured.

131. The method of claim 128 further comprising measuring the level of the secondary metabolite in the media in which the cell was cultured.

132. An isolated polypeptide comprising the amino acid sequence of SEQ ID NO:91 having an amino acid change selected from the group consisting of: H253R, S341P, R121W, S322G, A83V, T135I, E177G, E197K, T281A, T256A, N466S, C73R, E303K, Q41K, Q41K, P16A, G23S, T9M, Q362E, R21H, S34A, Q80H, A84S, E303D, H374D, A440T, A441V, C445S, P469S, F31L, T409I, M971, E113D, D146N, P163S, H458Y, I43V, Q295L, F31L, C159S, E162K, R293L, S311N, L141, E18V, G138C, E338G, V361L, N400S, S174Y, A402T, F31L, P108S, D85N, I143F, M232I, T315I, S382Y, M385K, T461, Q62R, K77R, S323C, V373I, T294I, P310L, G337D, A394V, G436S, T139, V184I, D4E, V87I, D110E, A189T, N276D, T347R, N367I, Q377R, A425T, D131N, R312G, and A429G

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133. The polypeptide of claim 132 wherein the polypeptide when expressed in an *A. terreus* cell harboring a *lovF* gene increases expression of the *lovF* gene relative to an otherwise identical cell not expressing the polypeptide.

134. The polypeptide of claim 132 wherein the polypeptide when expressed in a *S. cerevisiae* harboring a gene under the control of the *A. terreus* *lovF* expression control region increases expression of the gene relative to an otherwise identical cell not expressing the polypeptide.

135. The isolated polypeptide of claim 77 or 132 wherein the polypeptide has an amino acid sequence that is otherwise identical to SEQ ID NO:91.--
